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Carlsbad Field Office
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AUG 13 2004



Mr. Steve Zappe, Project Leader
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6303

Subject: Transmittal of the Final Audit Report for the Hanford Site (A-04-19)

Dear Mr. Zappe:

This letter transmits the Hanford Site Audit Report for the processes performed to characterize and certify waste as required by Section II.C.2.c of the WIPP Hazardous Waste Facility Permit. The report contains the results of the annual re-certification audit performed on the processes for the characterization and certification of waste. The audit was conducted June 15-18, 2004.

An electronic version of audit documentation (Final Audit Report, B-6 Checklists, and the audited plans and procedures) is included as a courtesy for use by NMED, but is not to be regarded as the formal submittal.

I certify under penalty of law that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

If you have any questions concerning this audit report, please contact Ms. Ava Holland at (505) 234-7423.

Sincerely,

R. Paul Detwiler
Acting Manager

Enclosure



Mr. Steve Zappe

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AUG 13 2004

cc: w/enclosure
C. Walker, Techlaw *ED
WIPP Operating Record
CBFO QA File
CBFO M&RC

cc: w/o enclosure
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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

HANFORD SITE

RICHLAND, WASHINGTON

AUDIT NUMBER A-04-19

JUNE 15 – 18, 2004

FINAL AUDIT REPORT OF WASTE CHARACTERIZATION
AND CERTIFICATION IN ACCORDANCE WITH THE
HAZARDOUS WASTE FACILITY PERMIT



Prepared by: Pete V. Rodriguez
Pete V. Rodriguez, CTAC
Audit Team Leader

Date: 8/12/04

Approved by: Ava L. Holland
Ava L. Holland, CBFO
Quality Assurance Manager

Date: 8/13/04

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-04-19 was conducted to re-evaluate the adequacy, implementation, and effectiveness of the Hanford site transuranic (TRU) waste characterization, transportation, and certification activities. The audit was conducted to evaluate retrievably stored and newly generated debris (Summary Category Group S5000), contact-handled waste at the Waste Receiving and Processing (WRAP) facility. The audit also assessed newly generated debris waste (S5000) and homogeneous solids waste (S3000) characterized at the Plutonium Finishing Plant (PFP), WRAP and T-Plant, as applicable. In addition, the audit evaluated the procedures and processes for assay and packaging of waste at the PFP. The audit team also re-evaluated S3000 waste streams analyzed by the Idaho National Engineering and Environmental Laboratory (INEEL).

The audit was conducted at the Hanford site during the week of June 15 – 18, 2004. The audit team concluded that the Hanford technical and quality assurance (QA) procedures continue to be adequate relative to the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD) and the Waste Analysis Plan (WAP) of the Hazardous Waste Facility Permit (HWFP). The audit team also concluded that the defined QA and technical processes for the audited activities continue to be implemented in accordance with the Hanford Quality Assurance Project Plan (QAPjP) and implementing procedures, and that the processes are effective.

The deficiencies identified in the corrective action report (CAR) discussed in section 6.0 have been subsequently corrected. The audit team also concluded that the QA program is being satisfactorily implemented and that the Hanford technical processes evaluated are satisfactorily implemented and effective.

The audit team identified two conditions adverse to quality that resulted in the issuance of one WAP-related CBFO CAR, which required corrective action in the areas of acceptable knowledge (AK) confirmation and accuracy reporting, and historical real-time radiography (RTR) data that do not, in all cases, reflect the presence or absence of prohibited items as documented in the waste stream summaries. Four isolated deficiencies requiring only remedial corrective action were corrected during the audit (CDA). Two Observations were identified, and two Recommendations are being offered for Hanford management consideration. The CAR and CDAs are described in section 6.0 and the Observations and Recommendations are described in section 7.0.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the continued adequacy, implementation, and effectiveness of technical and QA processes related to Hanford TRU waste characterization and certification activities.

The following elements were evaluated in accordance with the CBFO QAPD:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- QA Grading
- Documents and Records
- Procurement
- Control of Measuring and Test Equipment
- Control of Nonconforming Items/Corrective Action
- Audits/Assessments
- Sample Control
- Software Quality Assurance

The following CBFO technical characterization elements were evaluated in accordance with the WAP:

- Sample Design
- Headspace Gas (HSG) Sampling at T-Plant
- HSG analysis using cryofocusing gas chromatography/mass spectrometry (GC/MS) for S3000 and S5000
- HSG sampling including gas-tight seal option for pipe overpack containers (POCs) and drums and side port sampling (S3000 and S5000) at T-plant and the WRAP
- Solid Sampling at PFP (S3000)
- Chain-of-custody process for HSG SUMMA™ canisters to be sent for analysis at the INEEL
- Nondestructive Examination (NDE)/RTR (two RTR units at the WRAP)
- Visual Examination (VE) at the WRAP (S5000)
- Visual Examination Technique (VET) at the PFP (S3000 and S5000)
- Performance Demonstration Program (HSG)
- Data Verification & Validation (V&V)
- Acceptable Knowledge (AK)
- Waste Stream Profile Forms
- Waste Isolation Pilot Plant (WIPP) Waste Information System (WWIS)

Evaluation of Hanford TRU Waste Characterization Program documents was based on current revisions of the following documents:

Hanford Site Quality Assurance Project Plan (QAPjP) for the Transuranic Waste Characterization Program

Hanford Site Transuranic Waste Certification Plan

Related Hanford technical and QA implementing procedures

3.0 AUDIT TEAM, INSPECTORS, AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Pete Rodriguez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Steven Calvert	Auditor, CTAC
Norman Frank	Auditor, CTAC
John Gray	Auditor, CTAC
Wayne Ledford	Auditor/Technical Specialist, CTAC
Porf Martinez	Auditor, CTAC
Jeff May	Auditor, CTAC
Charlie Riggs	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Dee Scott	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Patrick Kelly	Technical Specialist, CTAC
BJ Verret	Technical Specialist, CTAC
Joe Willis	Technical Specialist, Washington TRU Solutions (WTS)

OBSERVERS/INSPECTORS

Mike Eagle	Environmental Protection Agency (EPA) Inspector
Jim Oliver	EPA Inspector/Trinity Engineering
Steve Holmes	New Mexico Environment Department (NMED) Observer
June Dreith	NMED/Tech Law
Bob Thielke	NMED/Tech Law

4.0 AUDIT PARTICIPANTS

Hanford individuals involved in the audit process are identified in Attachment 1. A preaudit meeting was held at 2420 Stevens Drive, conference room 153, on June 15, 2004. Daily meetings were held with Hanford management and staff to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at 2420 Stevens Drive, conference room 153, on June 18, 2004.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

This audit was performed to assess Hanford's continued ability to characterize S5000 contact-handled waste at the WRAP facility. The audit also assessed S3000 and S5000 wastes characterized at the PFP, WRAP, and T-Plant, as applicable. In addition, the audit also evaluated the procedures and processes for assay and packaging of waste at the PFP. Waste streams from Summary Category Group S3000, analyzed by the INEEL, were also re-evaluated. The characterization methods assessed were HSG

sampling, solids sampling, HSG analysis, AK, RTR, VE, and VET. Data review, validation, and use of results from these activities to perform data quality objective (DQO) reconciliation and prepare Waste Stream Profile Forms (WSPFs) were assessed.

The waste streams examined during this audit included mixed and non-mixed debris from the site Plutonium Uranium Extraction (PUREX) Plant; mixed and non-mixed debris from the PFP facility; mixed sand, slag and crucible (SS&C) debris; mixed debris from the mixed oxide process; mixed RFETS incinerator ash (solids); and mixed Hanford incinerator ash (solids).

The audit team concluded that the applicable Hanford TRU waste characterization activities, as described in the associated Hanford implementing procedures, satisfactorily meet the requirements contained in the HWFP. The deficiencies identified in section 6.1 have been corrected. Details of audit activities, including specific objective evidence reviewed, are described below and in the attached B6 checklist. The B6 checklist identifies the Hanford program documents and procedures in which the WAP requirements are met. Attachment 3 contains examples of the objective evidence reviewed during the audit.

5.2 Technical Activities

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy, as defined in the WAP, is implemented by using controlled procedures. This audit was performed to assess Hanford's continued ability to characterize retrievably stored and newly generated debris (S5000), contact-handled waste at the WRAP facility. The audit also assessed newly generated debris and homogeneous solids (S3000 and S5000) characterized at the PFP, WRAP, and T-Plant, as applicable. Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, and training documentation for TRU Waste Characterization Program (TWCP) personnel were included in the evaluation. The audit included direct observation of waste characterization activities and review of the documentation associated with gas sampling and analysis, solids sampling, RTR, VE, VET, and WWIS data entry. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information
- Reducing the data to a useable form, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program DQOs
- Reporting the final waste characterization information to WIPP

The flow of data from the point of generation to inclusion in the WSPF was reviewed for each characterization technique to ensure that all applicable requirements were captured in the site operating procedures. Specific procedures audited and the objective evidence reviewed are described in more detail in the following sections.

Hanford demonstrated compliance with the characterization requirements of the WAP in documentation and in characterization activities performed. Hanford provided combined sampling and analysis batch data reports (containing sampling and gas analytical batch information), as well as batch data reports for RTR, VE, and VET, as cited below. The project-level data V&V process was also evaluated by reviewing the following batch data reports (copies of all the referenced batch data reports are included in Attachment 3):

- WSCF-040412CRO (HGAS) (T-Plant)
- WSCF-040202BRO (HGAS) (T-Plant)
- WSCF-031013ARO (HGAS) (WRAP)
- WSCF-030923RO (HGAS) (WRAP)
- WSCF-0403081R0 (HGAS) (T-Plant - INEEL)
- WSCF-040518BR0 (HGAS) (PFP)
- WSCF-040322R0 (HGAS) (WRAP)
- PFP-SS-2003-01 (Solid Sampling)
- PFP-SS-2003-02 (Solid Sampling)
- WR-TB-2003-183 (RTR)
- WR-TB-2003-205 (RTR)
- WR-TB-2003-225 (RTR)
- VE-TB-2003-112 (VE)
- VE-TB-2003-114 (VE)
- VE-TB-2002-194 (VE)
- PFP-VE-2004-012 (VET)
- PFP-VE-2004-021 (VET)
- PFP-VE-2004-028 (VET)
- PFP-VE-2004-037 (VET)
- PFP-VE-2004-038 (VET)

AK and the auditable records were reviewed in detail for waste streams S5000 and S3000. The AK records were reviewed to demonstrate that the required information was present and correctly interpreted. Batch data reports PFP-VE-2003-007, PFP-VE-2003-008, WSCF-030813RO, PFP-VE-2002-002, PFP-VE-2003-034, and WSCF-030415RO, in addition to the batch data reports cited above, were used to demonstrate confirmation of AK, reconcile DQOs, prepare WSPFs, and transmit data to WIPP using the WWIS.

A WSPF and related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from characterization processes.

Actual WSPFs have been prepared and were submitted to CBFO prior to any shipments, as required. The forms were reviewed and approved by the CBFO when the waste streams had been fully characterized, and the site was approved to ship waste.

5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

The audit team evaluated the solids sampling procedure (Z0-160-082, *Residue Solid Sampling*) and process at the PFP during a demonstration performed by Hanford personnel. The audit team also examined the documentation generated during the demonstration and reviewed previous solid-sampling batch data reports, which provide satisfactory evidence of implementation and procedure compliance. No issues were identified for this process. Documentation supporting solid sampling activities is contained in Attachment 3 to support the entries in Table B6-2. The VET being used for characterizing waste at the PFP facility, as applied to homogeneous solids (S3000), was also evaluated through the review of data packages.

No Hanford S4000 (soils/gravel) waste will be accepted for disposal at WIPP until the procedures are developed and processes are completely assessed and accepted by CBFO, and the NMED has approved the final audit report.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. Items on the AK checklist are intended to ensure that Hanford has AK processes in place to:

- Train personnel in data collection requirements
- Assemble collected data into a coherent narrative detailing the waste generation and constituents
- Segregate the waste into like waste streams
- Provide Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm those characterizations using sampling and analysis
- Provide an auditable set of records to support the characterization

The AK process was evaluated by reviewing AK summary reports, source documents, and other applicable documentation related to the following waste streams: mixed and non-mixed debris from PUREX; mixed and non-mixed debris from the PFP facility; mixed sand, slag and crucible debris; mixed debris from the mixed oxide process; mixed RFETS incinerator ash (solids); and mixed Hanford incinerator ash (solids). The following AK documents were reviewed:

HNF-3461, *Hanford Site TRU Waste Management Program AK Documentation for Retrievably Stored Contact-Handled Waste*

HNF-5482, *Hanford Site TRU Waste Management AK Documentation for the Plutonium Finishing Plant*

HNF-5481, *Hanford Site TRU Waste Management Waste Specific AK Documentation for PFP Non-Mixed Debris*

HNF-6489, *Hanford Site TRU Waste Management Waste Specific AK Documentation for PFP Mixed Debris*

HNF-6900, *Hanford Site TRU Waste Management Waste Specific AK Documentation for PUREX Plant Non-Mixed Debris*

HNF-7355, *Hanford Site TRU Waste Management Waste Specific AK Documentation for PUREX Plant Mixed Debris*

Other upper-tier AK, waste stream-specific documents that were examined included documents for SS&C at the PFP, Hanford incinerator ash, Hanford plutonium uranium mixed oxides (MOX) at the PFP, and Rocky Flats incinerator ash.

The AK checklist was completed, in part, by reviewing the documents mentioned above. Additional documentation supporting the AK summary documents and AK source document review summaries are contained in Attachment 3 to support the entries in Table B6-3.

The AK process includes provisions to identify information that conflicts with what is expected in a waste stream (confirmation processes) and a method by which these conflicts can be resolved. The discrepancy resolution process is described in procedure WMP-400, Section 7.1.9, *Acceptable Knowledge Documentation Management*. Procedure WMP-400, Section 7.1.1, *TRU Waste Characterization DQO Reconciliation and Reporting*, was also evaluated during the audit.

The procedures cited above, which are used by the site to assemble, evaluate, document, and reconcile sampling and analysis results, were reviewed for adequacy, and their implementation was assessed during the audit. The AK requirements include procedure content and specific requirements for retrievably stored and newly generated waste, and ensure that the AK summary includes all mandatory information required by the WAP.

The audit team conducted traceability exercises for waste drums from the Hanford ash, MOX, and mixed PUREX streams, including the review of confirmatory testing batch data reports and associated documents such as WSPFs, HSG summary reports, and solids summary reports, and other WSPF attachments such as the DQO checklist, documentation for random selection of containers for solids sampling, reduced HSG sampling and VE as a QC check, NCRs developed for the discovery of prohibited items and for resolving inconsistencies between AK and confirmatory testing, and the development of AK accuracy reports (Hanford performance reports). The audit team requested and reviewed a sample from the AK Source Document Reference List for the three streams noted above. The audit team also reviewed supporting documentation

for AK TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements regarding sharp and heavy objects and the comparison of chemical constituents with listings in tables 4-1 through 4-8 of the CBFO TRAMPAC.

One deficiency in the area of AK confirmation and accuracy reporting, as well as historical RTR data not always reflecting the presence or absence of prohibited items as documented in the waste stream summaries, was identified and is discussed in section 6.1. This CAQ has been satisfactorily resolved and closed (CBFO CAR 04-030).

Four issues were identified that relate to the AK summaries and source documents (CDAs 1 - 4, section 6.2). The issues were determined to be isolated deficiencies and were satisfactorily corrected during the audit (CDA).

While reviewing HNF-3461, R7, *Hanford Site TRU Waste Management Program AK Documentation for Retrievably Stored CH Waste*, which contains information in Table 3.3 on 200 area TRU waste streams, it was noted that the MOX waste stream is not mentioned. An observation was subsequently documented to identify this issue (see Observation 1 in section 7.1).

Two recommendations regarding improvement in the AK summary documents was offered for consideration. These recommendations relate to the content of AK summaries as well as enhancements to the AK procedure (Recommendations 1 and 2, section 7.2).

This audit verified that Hanford is satisfactorily implementing the AK process to delineate, characterize, and confirm the characterization of waste for disposal, in accordance with WIPP WAP requirements.

5.2.4 Table B6-4 Headspace Gas Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. HSG sampling and analysis operations at Hanford, including solids sampling operations, were evaluated by examining the sampling and analysis equipment, conducting personnel interviews, and reviewing selected HSG batch data reports for actual sample collection and analysis of SUMMA™ canister samples and for sample canister assemblies (SCAs). The following procedures were evaluated:

WMP-400, Section 7.1.7, *TRU Waste Sample and Waste Container Management Activities*

WMP-400, Section 8.1.1, *Logkeeping Practices for WIPP Activities for Headspace Gas Sampling and Analysis*

WMP-400, Section 8.1.8, *Data Management for Headspace Gas Sampling and Analytical Results*

LO-080-407, *Cleaning Summa™ Canisters for TRU HSG Sampling*

LA-523-410, *Determination of VOCs in TRU/Mixed Waste Container Headspace*

LA-523-426, *Determination of Permanent Gases in TRU Waste Container Headspace*

LO-090-450, *TRU Project Sample C-O-C, Storage, Acceptance, and Disposal*

TRU-OP-001, *Headspace Gas Samples of TRU Waste Containers*

DO-080-009, *Obtain Headspace Gas Samples of TRU Waste Containers*

ZO-160-082, *Residue Solid Sampling*

Sampling and analytical batch data reports are combined into a single report. Batch data reports WSCF-0403081R0, WSCF-040518BR0, WSCF-040412CR0 and WSCF-040322R0 were reviewed to evaluate sampling and analysis results against WAP requirements. Sample control (including shipment to the INEEL for analysis) and cleaning of SUMMA™ canisters were also evaluated. The batch data reports for samples taken through a sampling port, samples taken of POCs, and samples from solids were examined and found to be satisfactory.

HSG analytical batch data reports were examined for volatile organic compound (VOC) analyses and hydrogen/methane analyses and were found to meet criteria. Sample custody, storage following sampling, analysis, and sample release were determined to be adequate for both HSG samples and solid samples. Measuring and test equipment (M&TE) used in support of HSG sampling and analysis activities and solids sampling activities was also verified. Finally, SUMMA™ canister cleaning operations were evaluated and found to be satisfactory.

The dart sampling system was previously assessed during CBFO Audit A-03-25. While the dart sampling system was not operational during this audit, it was verified that this is the sampling system now in place at the Hanford facility. The batch data reports examined during this audit confirmed continued implementation and effectiveness, as previously verified.

The audit team also examined specific PDP documentation and interviewed Hanford PDP personnel. The team reviewed information from HSG PDP Cycle 18A, and determined that PDP activities were adequate, satisfactorily implemented, and effective.

The HSG sampling and analysis process at Hanford satisfactorily implements the WIPP WAP requirements. Batch data reports that serve as objective evidence for implementation of activities of the B6-4 checklist are included in Attachment 3, as are copies of excerpts of other applicable documentation.

5.2.5 B6-5 Radiography Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. Hanford radiography operations are performed using a RTR system in the WRAP facility. Hanford has controls to allow the operator to enhance the image quality of the radiograph, annotate the videotape with text, provide narration with video, rotate the drum as it is imaged, enlarge the image, and pan up and down the container. These controls allow site personnel to view drums while recording the examination on an audio/videotape.

Three data packages and associated videotapes were reviewed and operations were observed on June 15, 2004. Training records for three RTR operators, including test drum videotapes, were also examined. The associated documentation and batch data reports evaluated for this activity included the following: WR-TB-2003-183, WR-TB-2003-205, and WR-TB-2003-225. These reports are included in Attachment 3.

Objective evidence was evaluated for RTR equipment and operations. The RTR process was evaluated and verified through review of the documentation noted above. Batch data reports and RTR videotapes were selected to evaluate the documentation of the RTR process.

Radiography equipment maintenance and daily checks were evaluated against the WAP requirements as implemented in the RTR procedures, and were found to be satisfactory. Radiography results are properly reported on standard forms and are adequately reviewed, as required by the WAP. Copies of the forms are included in the batch data reports listed in Attachment 3.

The audit team concluded that Hanford satisfactorily implements the WIPP WAP radiography requirements.

5.2.6 B6-6 VE Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000, retrievably stored and newly generated debris and homogeneous solids waste streams. Visual examinations include both the QC check performed on radiography results and observations made during initial waste packaging. Hanford was audited to determine the effectiveness of VE as the QC check on RTR. VE to support radiography is recorded on audio/videotape and documented on standard forms.

Hanford VE activities were evaluated and verified by conducting personnel interviews, reviewing videotapes, and evaluating a batch data reports VE-TB-2003-112, VE-TB-2003-114, VE-TB-2003-194 and associated documentation (included in Attachment 3).

The VE procedure used is WRP1-OP-0729, *Visual Examination*. The audit team found the procedure to be adequate in meeting the WAP requirements.

The audit team assessed the random selection procedure, WMP-400, Section 7.1.4, *Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Waste*, which is used to select drums to confirm RTR results. The audit team also assessed Procedures WMP-400, Section 7.1.6, *TRU Waste Project Level Data Validation and Verification*, which is used to determine the miscertification rate for the site; WRP1-OP-725, *TRU Sorting Glovebox Operation*, used to remove non-compliant or suspect non-compliant items from the drum contents and sample bulk material in the waste; and WRP1-OP-0726, *TRU Loadout Glovebox Operation*, which is used to document the condition and contents of repackaged waste.

The training and qualification records for operators and VE experts was reviewed to verify that all WAP requirements were captured. Copies of the training and qualification records are included in Attachment 3. No deficiencies were noted in this area.

The audit team concluded that Hanford is satisfactorily implementing the WIPP WAP VE requirements.

5.2.7 B6-6 VE Checklist (VET)

The audit also assessed and evaluated VET operations and documentation applied to S5000 debris waste characterized at the PFP facility to the requirements specified in the WIPP WAP.

The audit team evaluated and examined specific waste summary categories subject to the VET program at the PFP facility. These activities included VET as applied to residues (e.g., sand, slag and crucibles) and decontamination and decommissioning (D&D) debris. Six data packages and the training files for two operators were reviewed. The VET of D&D debris was observed on June 17, 2004, in the PFP. Hanford VET activities were evaluated and verified by conducting personnel interviews and reviewing VET batch data reports PFP-VE-2004-012, PFP-VE-2004-021, PFP-VE-2004-028, PFP-VE-2004-034, PFP-VE-2004-037 and PFP-VE-2004-038.

One issue of no current deficiency but possible future impact concerning the implementation of the VET for D&D debris was identified and documented. The percentage and weight estimates for waste material parameters on the VET data sheets generated per ZO-170-057 were not consistent with each other. Details are discussed in section 7.1, Observation 2.

At the time of the audit, Hanford had only generated one batch data report for one container using ZO-170-057, a new procedure for VET of D&D debris; therefore the implementation and effectiveness of *this* procedure was found to be indeterminate. Subsequent to the audit, however, two additional batch data reports that implement procedure ZO-170-057, were received and found acceptable by CBFO. Consequently, the "indeterminate" designation, as initially reported in the CBFO interim report of 7/7/04, is now classified as complete, adequate, satisfactorily implemented, and

effective. The previously certified VET procedures and process were also found to remain adequate, satisfactorily implemented, and effective.

The VE technique requirements for use at Hanford on TRU waste are promulgated to the waste generators by the TRU Site Project Office in Procedures WMP-400, Section 7.1.10, *TRU Waste Visual Examination Technique*, and ZO-170-057, as mentioned above. These are generic procedures that apply to any waste generator performing VET of TRU waste for WIPP characterization at Hanford. The PFP has developed two procedures based on the requirements of WMP-400, section 7.1.10. Procedure ZO-160-080, *Pipe-N-Go Operations*, provides the instructions for repackaging and performing VET on residues. The procedure requires that residues be crushed and sieved during repackaging, and "blended down" with silica sand to reduce plutonium concentrations; and Procedure ZO-160-081, *Pu/Al Alloys Operations*, which is limited to performing VET of the residue to be repackaged into a vented package configuration. An additional procedure established and evaluated included Procedure WRP1-OP-0722, *TRU RWM Glovebox Automatic Mode Operation*. This procedure describes the use of VET to ensure that no prohibited items are present after treatment of non-compliant waste containers (such removal of offending items, absorption, etc.) and for newly generated waste containers resulting from the removal, segregation, and/or treatment of prohibited items during glovebox operations.

The training of VET operators was reviewed and found to meet the requirements of the TRU Waste Program. No deficiencies were identified in the area of VET and repackaging in the PFP. The audit team determined that the written procedures for VET and repackaging were adequate and that the VET and repackaging processes were satisfactorily implemented and effective.

5.3 General

5.3.1 Results of Previous Audit

The CARs resulting from a previous Hanford re-certification audit (A-03-14) were examined and it was determined that the conditions identified, with the exception of CBFO CAR-03-064, had been corrected and continue to be effective. These conditions are addressed in CAR-04-030.

5.3.2 Changes in Program or Operation

The HWFP portions of the audit were performed in accordance with the latest B6 checklists, which incorporate all the Class 1, 2, and 3 modifications to the HWFP. The Hanford TRU Waste Characterization Program (TWCP) has not implemented any changes in the program or operation, with the exception of the minor changes described below.

5.3.3 New Programs or Activities Being Implemented

VE Technique of D&D debris in PFP was verified (see section 5.2.7).

5.3.4 Changes in Key Personnel

There have been a few minor changes in Hanford's TWCP key personnel since the last certification audit. New primary and alternate Site Quality Assurance Officers (SQAOs) have been appointed, as well as an alternate Transportation Certification Official (TCO). The individuals are experienced in the TRU program at Hanford and have simply been re-assigned/appointed.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality (CAQs) and document such conditions on corrective action reports (CARs).

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

Two WAP-related deficiencies, requiring the issuance of one CAR, were identified during the audit. The CAR describes AK confirmation and accuracy reporting, as well as historical RTR data, that do not reflect the presence or absence of prohibited items as documented in the waste stream summaries, in all cases. This deficiency was subsequently documented in CBFO CAR 04-030 (see Attachment 2). This CAQ has been corrected and the CAR has been closed (CBFO CAR 04-30).

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant using the following definitions. Once a determination is made that the CAQ is not significant, the audit team members, in conjunction with the ATL, determine if the CAQ is an isolated case requiring only remedial action and therefore can be Corrected During the Audit (CDA). Upon determination that the CAQ is isolated, the audit team members, in conjunction with the ATL, evaluate/verify any objective evidence/actions submitted or taken by the audited organization and determine if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and where correction of the

deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or dated (isolated), and one or two individuals who have not completed a reading assignment.

Four WAP-related discrepancies that resulted in CDAs were identified and corrected during this audit. The isolated deficiencies and CDAs are as follows:

1. The list of expected radioisotopes for the AK summary reports for SS&C, RFETS ash and Hanford ash does not list Cs-137 in the radionuclides section even though Sr-90 is noted as expected. This was subsequently corrected and verified.
2. The listing of prohibited items in the eight AK summaries examined is not consistent. In several cases, liquids are not listed. The identification of the waste material parameters, as required by paragraph 4.3.2.d of the AK procedure, was also applied inconsistently. This was subsequently corrected and verified.
3. Two AK source documents (TRU-SPO-11.4.4-0226200132170 and TRU-SPO-11.4.4-0226200132290) did not include a completed AK source document summary, as required by WMP-400, section 7.1.9, paragraph 4.2.4. This was subsequently corrected and verified.
4. The AK documentation checklist (Attachment 1 for each of the eight waste streams examined) incorrectly referenced the respective AK summary reports for WAP waste stream requirements 1 through 12. The correct reference should have been an AK source document (or documents.) This was subsequently corrected and verified.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions that warrant input by the audit team to the audited organization regarding potential problems or suggestions for improvement. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations or Recommendations, using the following definitions. Once a determination is made, the audit team members, in conjunction with the ATL, categorize the conditions appropriately.

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendation – Suggestion that is directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

7.1 Observations

The following two WAP-related issues, resulting in two Observations, were identified during the audit:

1. HNF 3461 R7 Hanford Site TRU Waste Management Program AK Documentation for retrievably stored CH Waste contains information in Table 3.3 on 200 area TRU waste streams. The MOX waste stream is not mentioned.
2. Section 6.2.1 of Z0-170-057 requires the VET operators to estimate the percentages and weights of Waste Material Parameters (WMPs) and record them on Data Sheet 1. On the data sheets for BDR PFP-VE-2004-034, the percentage and weights for the individual waste items do not mathematically match and are not consistent with each other. The percentage estimates are used as an aid to the operator in determining the estimated weights. The volume estimates and final weight estimates do not have to match, but this should be clarified in the procedure so the batch data reports do not appear to be incorrect.

It was determined that while deficiencies did not currently exist, there is a potential for future problems. The personnel contacted were encouraged to monitor these areas.

7.2 Recommendations

The following four WAP-related Recommendations were provided to Hanford management during the audit:

1. AK summary documents HNF 5481, HNF 6489, and HNF 5482 provide the AK documentation for the PFP. HNF 5481 and HNF 6489 provide waste-specific AK for the PFP non-mixed and mixed debris waste and were prepared using data from HNF 5482, however, they do not reference HNF 5482. The reference should be included.
2. AK procedure WMP-400, section 7.1.9, paragraph 4.6.8, should be modified to include instructions for completing the column on the AK Performance Report, Attachment 9, which addresses "radiological data inconsistent with AK." The AK Waste Stream Summary, Attachment 6, when completed for RTR/VE training, should include the data collector and Site Project Manager (SPM) signatures as shown on the procedure example page.

8.0 LIST OF ATTACHMENTS

Attachment 1: Hanford Personnel Contacted During the Audit
Attachment 2: Corrective Action Supporting Documentation
Attachment 3: Objective Evidence
Attachment 4: Hanford Procedures Audited for A-04-19

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Abdurrahman, Naeem	FH WRAP NDA Senior Scientist	X	X	X
Arrenholz, Dan	NWI Scientist			X
Bisping, Russ	TRU QA-SQAO	X	X	X
Bisping, Scott	FH TRU Project AK Expert	X	X	X
Bottenus, R. Jay	FH WRAP Engineering Manager NDA		X	
Bratcher, Peggy	TRU Project PFP Waste Mgmt. – VET Operator		X	
Bradt, Orval	TRU Project – Project Control		X	
Cameron, Michelle	PFP CTS NDA Scientist - Calorimetry		X	X
Caraway, Mary Jo	TRU Project - WWIS Data Entry		X	
Carlton, Rick	Maintenance/Shipping Millwright		X	
Carson, Pete	NWI TRU Program – Engineer - NDA	X	X	X
Carter, Steve	WRAP – Operations – Supervisor-In-Training		X	
Clark, Travis M.	DFSNW TCO - Transportation		X	
Clinton, Richard	FH TRU Project, Engineer	X	X	
Colley, Briana	FH WSCF HSG		X	
Curfman, E.W.	FH PFP A-Lab Manager		X	
Decker, Janet	TRU Program, Records Specialist – WWIS Data		X	
DeRosa, David	FH TRU Program – Alternate SPM	X	X	X
Dickert, Mike	TRU Project – Procedures Writer	X	X	

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Dunn, Rick	FH Director TRU Program	X	X	
Dunnum, Cathy	TRU Project Records – Admin. Assistant		X	
Farwick, Dana G.	FH QA - TRU QA Manager	X	X	X
French, Mark	DOE-RL TRU Project Director	X		
Geary, James E.	FH WRAP – Facility Manager	X		X
Gentry, Wayne	T-Plant Crane Operations			
Gillespie, Bruce	CANBERRA, NDA Scientist	X	X	X
Gray, Bob	FH PFP Director, Facility Manager	X		
Greager, Eric	FH TRU Project/PFP/VE Technique	X	X	
Hackworth, Mike	RADCON – Material Balance Area Custodian		X	
Hale, Joseph	FH Scientist HSG VOC Analysis - Scientist		X	
Hey, Bruce	FH Scientist		X	
Hilliard, Jim	FH PFP – Waste Manager	X		
Higgins, Gerald	DOE-RL – TRU Program Lead	X	X	X
Higley, Kathy	TRU Project – CAR/NCR Coordinator		X	
Hope, Kevin	TRUPACT II Operations NCO		X	
Horhota, Mike	TRU Project QA Engineer – Alternate SQAQO		X	
Huggins, Stewart	FH TRU Project QA Engineer	X	X	X
Hutchins, Les	FH Environmental Engineer - NDA		X	X
Husted, Karl	WRAP NDA Scientist		X	
Keve, John	CEC/NDE – NDE Level III	X	X	
King, Scott	Transportation Operations – TRUPACT II		X	

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Kover, Karola	FH TRU QA – HSG Lead WCO	X	X	
Kowitz, R. M.	STRU Project – NDE Operator NDE/RTR		X	
Kuh, Dan	Transportation/Millwright		X	
McCollum, Rick	FH WMP Calibration Activity Manager-Facility Support	X	X	
McDonald, Kent	FH TRU Project - Engineer	X		
McKenney, Dale	FH Acting Director, Waste Management Project			X
McLain, Andrew	TRU Project PFP NDA Scientists		X	
Megow, Lois	TRU Project RMIS Scanner		X	
Messinger, M. R.	WRAP – NCO TRUPACT II		X	
Mischke, Steve	FH TRU Project QA & WRAP FQAO		X	
Palmer, Mark	WRAP Eng. Auto. Lead		X	
Phillips, Linda	TRU Project PFP Waste Management – VET Operator		X	
Pingel, Len	FH HSG Chemist		X	
Polotto, Cathy	TRUPACT II NCO WRAP		X	
Richards, Dave	WRAP Operators – VE Supervisor - VEE		X	
Roberts, Kay	TRU Project – Executive Secretary	X	X	X
Rohner, R. J.	TRU Project – WRAP Operations Duty Ops. Supervisor - NDA		X	
Root, Eric	Transportation - Millwright		X	
Sams, Chuck	TRU Project – WRAP QA Engineer		X	
Sewart, B. J.	NDE/Leak Test Technician		X	
Shaw, Janna	TRU Project – WSCF Procedures Writer		X	

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Sims, Victor	WSCF – Chem. Tech. Sample Custodian		X	
Smith, Kathryn	DFSNW, SPO TRU Prog. TCO		X	
Southworth, Tim	WRAP NDA Scientist		X	
Stauffer, Markus	WSCF HSG Lab Scientist Lead		X	
Sutter, Caroline	FH PFP Residues Manager / Solid Waste / VE Technique		X	
Sutton, Les	WRAP – Operations Supervisor		X	
Svoboda, Ken	FH TRU Project / WCO	X	X	
Thomas, Debbie	FH Training Administrator	X	X	
Turner, Shelby J.	FH – QA Director	X		X
Turvy, Kathy	DURATEK – TRU Project – WSCF FQAO	X	X	X
Uytioco, Elise	TRU Project – NDE/RTR		X	
Van Meighem, Jeff	TRU Project – Production / Ops. Control – NDE/RTR	X	X	X
Verma, Tilak	TRU Project – QA Engineer	X	X	X
Walkup, Larry	Radiation Control		X	
Watson, Nettie Heath	FH TRU Project – Records Specialist	X	X	
Wegner-Jorgensen, Anne	WS/Verification – NDE/RTR		X	
Whitten, Dianne	Radiation Control		X	

HANFORD PROCEDURES AUDITED FOR A-04-19		
NUMBER	PROCEDURE NUMBER	TITLE
1.	WMP-400, section 1.2.1 R12	TRU Training and Qualification Plan
2.	WMP-400, section 1.2.2 R13	Qualification and Certification of Inspection and Test Personnel
3.	WMP-400, section 1.3.1 R12	TRU Corrective Action Management
4.	WMP-400, section 1.3.2 R12	TRU Nonconforming Item Reporting and Control System
5.	WMP-400, section 1.3.3 R13	TRU Corrective Action Reporting and Control
6.	WMP-400, section 1.4.1 R10	TRU Document Control
7.	WMP-400, section 1.5.1 R16	TRU Records Management
8.	WMP-400, section 2.4.4 R8	TRU Control of Measuring, Test, and Data Collecting Equipment
9.	WMP-400, section 3.2.1 R4	TRU Independent Assessment
10.	WMP-400, section 3.2.2 R2	TRU Surveillance Program
11.	WMP-400, section 7.1.1 R14	TRU Waste Characterization DQOs Reconciliation and Reporting
12.	WMP-400, section 7.1.3 R4	Transuranic Waste Repackaging, Visual Examination, and Sampling
13.	WMP-400, section 7.1.4 R12	Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Waste
14.	WMP-400, section 7.1.5 R11	WWIS Data Reporting and Entry
15.	WMP-400, section 7.1.6 R14	TRU Waste Project Level Data Validation and Verification
16.	WMP-400, section 7.1.7 R14	TRU Waste Sample and Waste Container Management Activities
17.	WMP-400, section 7.1.8 R14	TRU Waste Transportation and Disposal Certification
18.	WMP-400, section 7.1.9 R16	Acceptable Knowledge Documentation Management
19.	WMP-400, section 7.1.10 R4	TRU Waste VE Technique
20.	WMP-400, section 8.1.1 R8	Logkeeping Practices for WIPP Activities for Headspace Gas Sampling and Analysis
21.	WMP-400, section 8.1.8 R17	Data Management for Headspace Gas Sampling and Analytical Results
22.	WMP-350, section 2.3 R19	Data Management of NDE/NDA Results
23.	WRP1-OP-0722 RB-2	TRU RWM Glovebox Automatic Mode Operation
24.	WRP1-OP-0725 RC-8	TRU Sorting Glovebox Operation
25.	WRP1-OP-0726 RD-4	TRU Loadout Gloveboxes Operation
26.	WRP1-OP-0729 RB-7	Visual Examination
27.	WRP1-OP-0908 RH-0	Operation of the Drum NDE System
28.	DO-080-009 RK-2	Obtain Headspace Gas Samples of TRU Waste Containers
29.	LA-523-410 RL-0	Determination of VOCs in TRU/Mixed Waste Container Headspace

HANFORD PROCEDURES AUDITED FOR A-04-19		
NUMBER	PROCEDURE NUMBER	TITLE
30.	LA-523-426 RF-0	Determination of Permanent Gases in TRU Waste Container Headspace
31.	LO-080-407 RH-0	Cleaning SUMMA™ Canisters for TRU HSG Sampling
32.	LO-090-450 RG-0	TRU Project Sample CO-C, Storage, Acceptance, and Disposal
33.	TRU-OP-001 RA-2	Headspace Gas Samples of TRU Waste Containers
34.	ZO-160-080 RC-13	Pipe-n-Go Processing
35.	ZO-160-081 RB-3	Pu/Al Alloys Operation
36.	ZO-160-082 RA-5	Residue Solid Sampling
37.	ZO-170-057 RB-0	VE Technique of PFP Debris
38.	FSP-PFP-5-8, section 16.2 R9-0	Data Management